

Serial No. 09/701,132
Attorney Docket No. 6433/80968

1-31. (Cancelled)

32. (Currently amended) An isolated and purified nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO[[.]]: 13 or a sequence of about 10 to about 20 nucleotides from SEQ ID NO: 13.

33. (Cancelled)

34. (Currently amended) A composition consisting essentially of an isolated nucleic acid molecule comprising ~~consisting essentially of~~ the nucleotide sequence of SEQ ID NO[[.]]: 13 or a sequence of about 10 to about 20 nucleotides from SEQ ID NO: 13.

35. (Previously presented) The composition of claim 34, further comprising either SEQ ID NO: 56 or 57.

36. (Cancelled)

37. (Currently amended) A primer comprising an isolated and purified nucleic acid molecule having about 10 to about 20 nucleotides of position 586 to 606 or position 791 to 810 of SEQ ID NO: 13.

38. (Previously presented) A composition comprising the primer according to claim 37.

39. (Cancelled)

40. (Previously presented) A method of detecting a particular H serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under hybridizing conditions, with at least one nucleic acid molecule according to claim 32 wherein the at least one nucleic acid molecule is specific for a particular flagellin gene associated with the particular H serotype of *E. coli*; and

(b) detecting any hybridized nucleic acid molecules wherein the presence of specifically hybridized nucleic acid molecules indicates the presence of that H serotype of *E. coli* in the sample.

41. (Previously presented) A method of detecting a particular H serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under hybridizing conditions, with a pair of nucleic acid molecules wherein one of the pair is specific for a flagellin gene associated with the particular H serotype of *E. coli* and is a nucleic acid molecule according to claim 32 and the other one of the pair comprises SEQ ID NO: 57; and

(b) detecting any hybridized nucleic acid molecules wherein the presence of hybridized nucleic acid

molecules signifies the presence of the particular H serotype of *E. coli* in the sample.

42. (Previously presented) A method according to claim 40 or 41 wherein the hybridized nucleic acid molecules are detected by Southern Blot analysis.

43-45. (Cancelled)

46. (Previously presented) A method for the detecting the presence of a H and O serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under hybridizing conditions, with at least one pair of nucleic acid molecules wherein one of the pair is selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),
wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),
wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),
wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),
wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56),
wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56),
and the other one of the pair is specific for a flagellin gene of *E. coli* and comprises SEQ ID NO: 57;

(b) contacting the sample with a nucleic acid molecule according to claim 32 under hybridizing conditions; and

(c) detecting any hybridized nucleic acid molecules wherein the presence of hybridized nucleic acid

molecules signifies the presence of the H and O serotype of the *E. coli* in the sample.

47. (Previously presented) A method for detecting the presence of a particular H and O serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under hybridizing conditions, with at least one nucleic acid molecule derived from and specific for a gene involved in the synthesis of a particular *E. coli* O antigen, the gene encoding a transferase enzyme or an enzyme involved in the transport or processing of a polysaccharide or oligosaccharide unit wherein the nucleic acid molecule is selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),

wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),

wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),

wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),

wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56),

wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56);

(b) contacting the sample, under hybridizing conditions, with a nucleic acid molecule according to claim 32;

(c) contacting the sample, under hybridizing conditions with a nucleic acid molecule comprising SEQ ID NO:57;
and

(d) detecting any hybridized nucleic acid molecules wherein the presence of hybridized nucleic acid molecules signifies the presence of the particular H and O serotype.

48. (Currently amended) A method according to claim 46 or 47 wherein the nucleic acid molecule of step (a) is a forward primer or a reverse primer selected from the group consisting of

Forward primer sequence (nucleotide positions of SEQ ID NO: [[2]] <u>56</u>)	Reverse Primer sequence (nucleotide positions of SEQ ID NO: [[2]] <u>56</u>)
79-96	861-844
184-201	531-514
310-327	768-751
858-875	2042-2025
1053-1070	1619-1602
1278-1295	1913-1896
2011-2028	2757-2740
2110-2127	2493-2476
2305-2322	2682-2665
2744-2761	4135-4118
2942-2959	3628-3611
5257-5274	6471-6454
5440-5457	5973-5956
5707-5724	6231-6214
13261-13278	13629-13612
13384-13401	13731-13714

49. (Previously presented) A method according to claim 46 or 47 wherein the hybridised nucleic acid molecules are detected by Southern Blot analysis.

50-55. (Cancelled)

56. (Previously presented) A method according to claim 40 or 41 wherein the sample is selected from the group consisting of a sample derived from food, a sample derived from faeces and a sample derived from a patient or animal.

57. (Previously presented) A kit for identifying the H serotype of *E. coli*, the kit comprising a nucleic acid molecule according to claim 32, a primer according to claim 37, or a composition according to claim 34 or 35.

58. (Previously presented) A kit for identifying the H and O serotype of *E. coli*, the kit comprising:

(a) a nucleic acid molecule according to claim 32; and

(b) at least one nucleic acid molecule selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),

wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),

wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),

wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),

wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56) and

wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56).

59. (Currently amended) A kit for identifying the H and O serotype of *E. coli*, the kit comprising:

(a) a nucleic acid molecule according to claim 32 and comprising SEQ ID NO: 57; and

(b) at least one nucleic acid molecule selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),

wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),

wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),

wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),

wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56) and

wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56).

60. (Currently amended) A kit according to claim 58 or 59 wherein the nucleic acid molecule of step (b) comprises a nucleic acid molecule acting as a forward primer or a reverse primer selected from the group consisting of

Forward primer sequence (nucleotide position of SEQ ID NO: [[2]] <u>56</u>)	Reverse Primer sequence (nucleotide position of SEQ ID NO: [[2]] <u>56</u>)
79-96	861-844
184-201	531-514
310-327	768-751
858-875	2042-2025
1053-1070	1619-1602
1278-1295	1913-1896

Serial No. 09/701,132
Attorney Docket No. 6433/80968

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2942-2959	3628-3611
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5440-5457	5973-5956
5707-5724	6231-6214
13261-13278	13629-13612
13384-13401	13731-13714

primers shown in the Table above.

61. (Currently amended) A kit according to claim 58 or 59 wherein the nucleic acid molecule of step (a) comprises a forward primer and a reverse primer selected from the group consisting of

Forward primer sequence (nucleotide position of SEQ ID NO: [[2]] <u>56</u>)	Reverse Primer sequence (nucleotide position of SEQ ID NO: [[2]] <u>56</u>)
79-96	861-844
184-201	531-514
310-327	768-751
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1053-1070	1619-1602

Serial No. 09/701,132
Attorney Docket No. 6433/80968

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5440-5457	5973-5956
5707-5724	6231-6214
13261-13278	13629-13612
13384-13401	13731-13714

forward and reverse primers shown in the Table above.

62. (Cancelled)

63. (Previously presented) A method according to claim 46 or 47 wherein the sample is selected from the group consisting of a sample derived from food, a sample derived from faeces and a sample derived from a patient or animal.

64-65. (Cancelled)

66. (Previously presented) A kit for identifying the H and O serotype of *E. coli*, the kit comprising:

(a) at least one primer according to claim 37;

and

(b) at least one nucleic acid molecule selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),
wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),
wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),
wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),
wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56) and
wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56).

67. (Currently amended) A kit for identifying the H serotype of *E. coli*, the kit comprising a nucleic acid molecule according to claim 32 ~~and one or more nucleic acid molecules~~ comprising the nucleotide sequence of SEQ ID NO: 57.

68. (Currently amended) A kit comprising a nucleic acid molecule according to claim 32 and one or more nucleic acid molecules comprising SEQ ID NO: 56 or 57.

69. (Previously presented) An isolated and purified nucleic acid molecule comprising the nucleic acid sequence from position 586 to 810 of SEQ ID NO:13.